



August 5, 2011

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, D.C. 20554

**Re: CG Docket No. 09-158, WC Docket No. 04-36, CC Docket No. 98-170**

Dear Ms. Dortch:

On July 27, 2011, I spoke by telephone with Walter Johnston, Chief, Electromagnetic Compatibility Division, Office of Engineering and Technology, and Deborah Broderon, Legal Advisor, Consumer and Governmental Affairs Bureau, regarding broadband performance and its effects on end user consumers.<sup>1</sup> I am the founder and Chief Scientist of Akamai Technologies, Inc. ("Akamai"). Akamai expresses no position on the various proposals that the FCC is considering in the proceedings referenced above. Significant points relating to our conversation follow.

For example, among the many characteristics that consumers seek from a broadband connection are that it always be available and that it is capable of performing the tasks that the consumers demand. In some cases, consumers may not experience the speeds advertised by broadband service providers (also known as Internet service providers or ISPs), but there are multiple reasons for this. Among such reasons are aggregate traffic levels, which can cause congestion, and the distance that the consumer's gateway device is from the content server. Of course, wireless ISP operations can pose significantly different technical and service issues compared to wired ISPs. Content delivery networks such as Akamai have individualized relationships with content providers and ISPs that can help speed the delivery of content. .

Consumers who use peer-to-peer applications or certain types of video chat applications at high quality should also be concerned about uplink speed, which is a different metric than download. In general, when considering fixed broadband connections, many consumers' broadband needs could be met by a reliable 1-5 Mbps connection, depending on the application. This range will change over time. For example, some high-end video is being encoded at 10Mbps today. Other factors can affect consumers needs as well, e.g.,

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<sup>1</sup> Please excuse the delayed filing of this letter, due to travel commitments.



if multiple videos are being watched by different people in the home simultaneously, then larger amounts of bandwidth will be needed to maintain the viewing experience for them.

In addition, the use of technical terms has limited usefulness. For example, "latency" is a difficult concept, and consumers have very little way of understanding the difference between latency of 1 ms and latency of 100 ms. However, latency impacts throughput for many applications such as video.

Basically, consumers should be concerned with having service that is always available, and allows applications and content to be viewable in the desired quality. Some comparisons a consumer could use could be whether the picture quality resembles a conventional television picture, or DVD, or Blu-ray™. These and other comparisons, such as the time a web page take to display or the number of web pages that can load in one minute, are based on user experience and can evolve over time.

Sincerely,

/s/ Tom Leighton

Tom Leighton

Chief Scientist, Akamai

cc: Walter Johnston  
Deborah Broderson